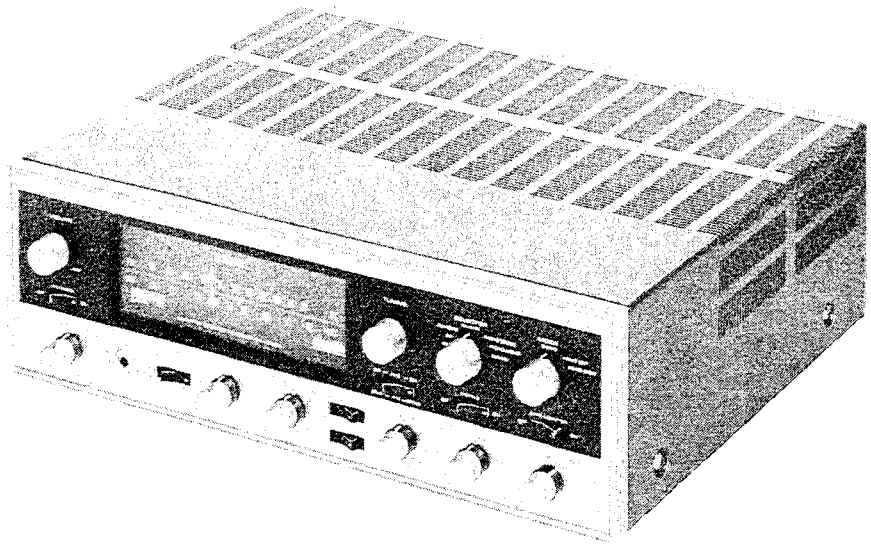
PIONEER®

AM/FM STEREO RECEIVER

Model SX-800A

INSTRUCTION MANUAL



THE SX-800A - ITS FEATURES

EXTRA-SENSITIVE FM TUNER SECTION

Uses the latest type space-age tubes in the front-end, for superb sensitivity and outstanding selectivity.

AUTOMATIC SWITCHING FM MULTIPLEX STEREO CIRCUIT

A time-switching circuit, renowned for its excellent channel separation and rock-steady stability, is used in the multiplex stereo circuitry, together with an automatic mono-stereo switching circuit, for convenience and simplicity in operation.

LARGE OUTPUT

The output stages are highly efficient circuits using powerful Nova type high output tubes, to provide truly professional performance in terms of both tonal quality and wattage ratings.

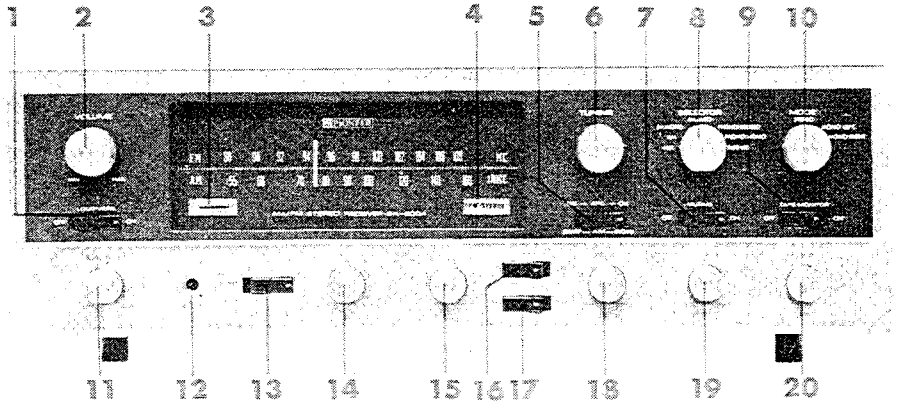
FULL RANGE OF SUPPLEMENTARY CIRCUITS

For versatility and convenience, a full range of supplementary circuits are provided. These include FM muting, FM AFC (automatic frequency control), loudness contour, low and high filters, tape monitor switch, tape recording/playback connector socket (conforming to West Germany D.I.N. standards), a jack for stereo headphones, etc.

PIONEER ELECTRONIC CORPORATION

PIONEER

HANDLING CONTROLS AND SWITCHES ON FRONT PANEL



1. Loudness Contour

When set to the ON position, lows and highs are boosted to compensate for the reduced sensitivity of the human ear to the lower and upper ends of the audio spectrum at low listening levels, which is an inherent characteristic of the human ear. At the OFF position, flat frequency response is provided.

Thus, when listening at low volume settings, setting this switch to the ON position will provide full depth and brilliance. At higher volume levels, the switch may be set to the OFF position since no compensation is required for natural reproduction.

2. Volume Control

This control provides adjustment of volume level. Turning it clockwise will increase volume, and turning it counter-clockwise will reduce volume.

3. Tuning Meter

This is the tuning indicator that indicates the tuning points for AM, FM, and FM stereo broadcasts. Observe the needle as a station is being tuned in. The point of maximum swing, where the needle goes to the far right, is the tuning point for that station.

4. Stereo Indicator

This is an indicator lamp that indicates in the reception of FM broadcasts whether the broadcast is a mono or stereo broadcast, providing the Selector Switch (8) is set to the FM AUTO position. It will go on if a station is transmitting FM multiplex stereo, or if a station switches over from mono to stereo.

5. FM-AFC/AM-SHARP. BROAD

FM broadcasts are transmitted on very high frequencies, and so as the receiver warms up, a certain amount of "station drift" is inevitable. The AFC (automatic frequency control) circuit is provided to compensate for any such station drift and keep the desired station "locked in," once it has been tuned in accurately initially. When tuning in an FM station, first set this switch to the OFF position, and after the station has been tuned in accurately, set it to the ON position.

AM-SHARP, BROAD

In the reception of AM broadcasts, this switch serves to change IF bandwidth. To listen to AM broadcasts with soft tonal quality and a minimum of noise, this switch should be set to the SHARP position and for high fidelity reproduction when there is little external noise, set it to the BROAD position.

6. Tuning

This is the tuning control that is manipulated to tune in AM, FM, and FM stereo stations.

7. Muting

Usually, as you tune across the FM band, there are considerable crackling "between-station" noises. By setting this switch to the ON position, such noises are "muted" or eliminated. However, when this is done, it also silences weak stations too, so for the reception of weak or distant stations, this switch must be set to the OFF position.

8. Selector

This switch selects the program source that is to be reproduced. Its positions are:

AUX	Auxiliary input circuit for external program sources.
AM	Reception of AM broadcasts
FM MONO	Reception of FM monophonic broadcasts
FM AUTO	Reception of FM broadcasts, with automatic switching to stereo or back to mono
PHONO STEREO	Reproduction of stereophonic disc records
PHONO MONO	Reproduction of monophonic disc records
TAPE HEAD	Reproduction of recorded tapes, both stereo and mono, with signals being fed directly from the tape deck's playback heads.

9. Tape Monitor

For the reproduction of recorded tapes, with the signals being fed from the line outputs of the tape recorder to the Tape Monitor jacks of the receiver, this switch should be set to the ON position. At all other times, it should be set to the OFF position for reception of broadcasts or playback of disc records, or to listen to material simultaneously as it is being recorded.

Note: It is important that this switch be set to the OFF position normally. In the reception of broadcasts or reproduction of disc records, no sounds will be heard from the loudspeakers with this switch set to the ON position.

10. Mode

For the reception of radio bradcasts or for the reproduction of disc records, either stero or mono, this switch should be set to the STEREO position.

Note: When set to the MONO position, the same sounds will be reproduced through the right and left channel loudspeaker systems. In such instances, providing the two loudspeakers are properly phased, the sounds will be heard from a point midway between the two loudspeaker systems.

11. Balance

This is the control that adjusts the balance of sound between the right and left channel loudspeaker systems. Turning it clokwise will boost the volume of the right channel loucspeaker, and turning it counter-clockwise will boost the volume of the left channel loudspeaker. Obtain optimum balance by adjusting it in accordance with the room acoustics and the efficiency factors of the loudspeaker systems.

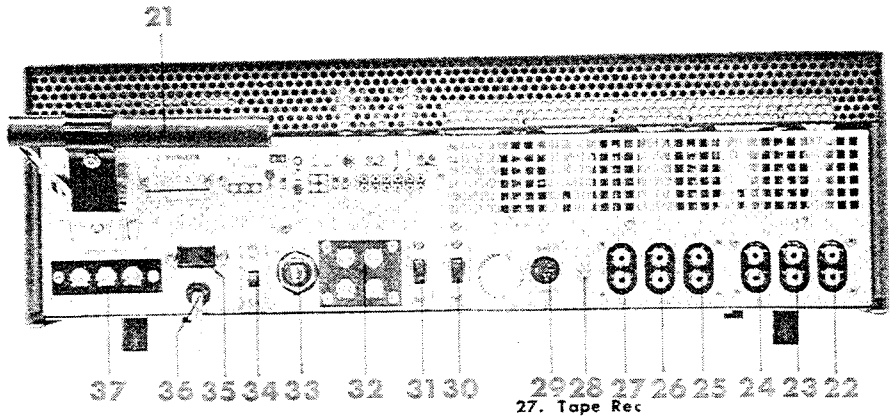
12. Phone

This is the jack for a pair of stereo headphone

13. Speaker

When set to the ON position, the sounds will be heard from the loudspeaker systems. When it is set to the OFF position, the loudspeaker systems will be silenced. The Phone jack is always "live" regardless of the position of this Speaker switch.

HANDLING TERMINALS, JACKS, AND SWITCHES ON REAR



14 & 15. Tone-Left
The Bass control (14) provides adjustment of bass response for the left channel, and the Treble control (15) provides adjustment of treble response for the left channel. Flat response is provided with the pointers of the controls set to the central position; when turned clockwise, response is boosted, and when turned counter-clockwise, response is reduced.

16. High Filter
If there is excessive high frequency noise, such as scratch or hiss from worn disc records, static, or noise from fluorescent fixtures, setting this switch to the ON position will eliminate such noise. Flat response is provided when it is set to the OFF position.

17. Low Filter
If there is excessive low frequency noise, such as turntable rumble, setting this switch to the ON position will eliminate such noise. Flat response is provided when it is set to the OFF position.

18 & 19. Tone-Right
The Bass control (18) provides adjustment of bass response for the right channel, and the Treble control (19) provides adjustment of treble response for the left channel. Flat response is provided with the pointers of the controls set to the central position; when turned clockwise, response is boosted, and when turned counter-clockwise, response is reduced.

20. Power
This is the line power switch for the receiver.

21. AM Ferrite Loopstick Antenna
This is a sensitive built-in antenna for AM reception.
Since this type of antenna is somewhat directional,it should be rotated to determine the orientation which provides the best reproduction.

22. Tape Head
When using a tape deck not equipped with preamplifiers for the reproduction of recorded tapes, the outputs from the playback heads of the tape deck are to be connected to these jacks.

23. Phono MAG
When using a turntable equipped with a moving-magnet or moving-coil type pickup cartridge, connect the outputs from the turntable to these jacks.

24. Phono CER/X-TAL
When using a turntable equipped with a ceramic or crystal type pickup cartridge, connect the outputs from the turntable to these jacks.

25. Aux
These are auxiliary inputs provided for hooking up an external tuner or the sound channel of a TV receiver.

26. Tape Monitor
If your tape recorder is equipped with preamplifiers, then the outputs from its line outputs may be connected to these jacks for high fidelity reproduction of recorded tapes.

27. Tape Rec
These jacks provide an output for recording radio broadcasts or disc records. The signals from these jacks should be connected to the Line Inputs of your tape recorder.

28. Ground Terminal
The receiver is grounded from this terminal. If your turntable is equipped with a ground lead, it should be connected to this terminal.

29. Tape Recording/Playback Connector Socket (D.I.N.Socket)
If your tape recorder is equipped with a D.I.N. type recording/playback connector socket, all connections for stereo recording and playback can be accomplished by a single multi-conductor cable connected between this socket and its counterpart on the tape recorder.

30. Loudspeaker Phase Selector
This switch reverses the phasing of the loudspeaker system.

31. Loudspeaker Systems Impedance Selector
This switch should be set to the appropriate position in accordance with the impedance ratings of the loudspeaker systems used. When using loudspeaker systems with impedance ratings of 11 to 20 ohms, it should be set to the 16 ohm position, and when using loudspeaker systems with impedance ratings of 4 to 10 ohms, it should set be to the 8 ohm position.

32. Loudspeaker Output Terminal Plate
These are the terminals to which the loudspeaker systems are connected. The upper two terminals are for the left channel loudspeaker, and the lower two terminals are for the right channel loudspeaker. For each pair of terminals, the terminals on the right are the positive and the terminals on the left are the negative.

33. Fuse Holder
This is the receptacle for the fuse for the receiver. A standard fuse with a rating of 2 amperes is used. If it has to be replaced, always replace it with one of identical capacity. Never replace it with a fuse with a higher rating as this could cause serious trouble.

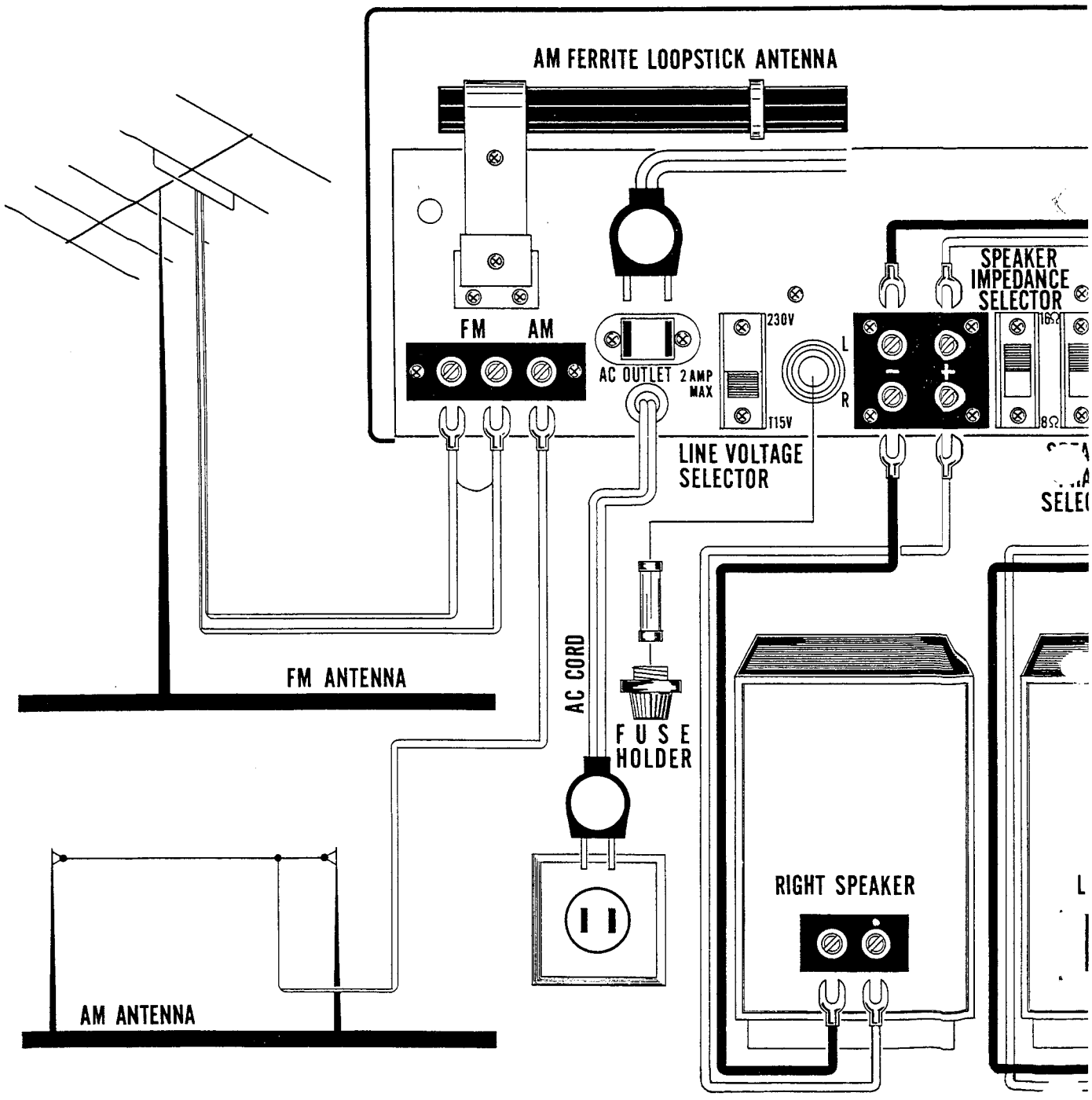
34. Line Voltage Selector
The receiver may be used on line voltages of 115 volts or 230 volts. Set this switch to whichever the mains voltage in your area.
Caution: Once this switch has been set to the proper position, it should be secured in position using the tab provided.

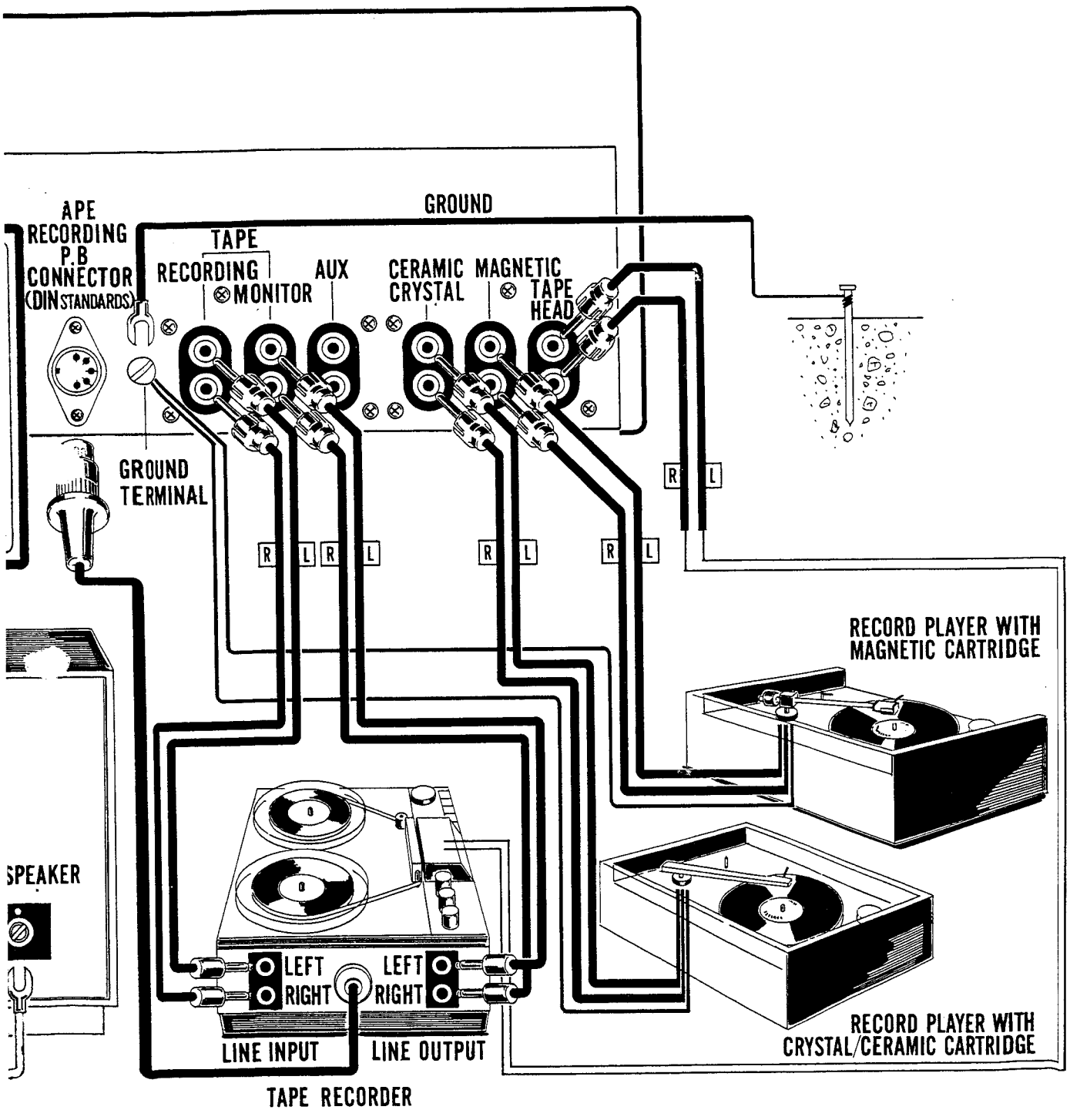
35. AC Receptacle
This is an AC receptacle providing a convenient source of AC power for the turntable, tape recorder, or any other supplementary unit used.
Caution: This outlet remains live even when the power switch of the receiver is switched off. The maximum capacity of this AC outlet is 2 amperes.

36. AC Cord
This is the power cord for the receiver.

37. Antenna Terminal Strip
The right terminal is for an AM aerial, whether using the indoor aerial lead provided with the receiver, or an outdoor aerial, the lead from the aerial is to be connected to this terminal. The center and left terminals are for the FM antenna.

PICTORIAL CONNECTION




APE
RECORDING
P.B
CONNECTOR
(DIN STANDARDS)
TAPE
RECORDING
MONITOR
AUX
CERAMIC
CRYSTAL
MAGNETIC
TAPE
HEAD
GROUND
GROUND
TERMINAL
R
L
R
L
R
L
R
L
R
L
RECORD PLAYER WITH
MAGNETIC CARTRIDGE
SPEAKER
LEFT
RIGHT
LEFT
RIGHT
LINE INPUT
LINE OUTPUT
TAPE RECORDER
RECORD PLAYER WITH
CRYSTAL/CERAMIC CARTRIDGE

PIONEER

MODEL SX-800A TECHNICAL SPECIFICATIONS

FM Section

Circuitry	Equipped with 3-gang tuning capacitor for tuned RF stage; wide-band ratio discriminator; muting circuit; and AFC circuit with defeat switch
Frequency Range	87 - 108 MC
IHF Usable Sensitivity	2.2 μv
Image Rejection	56 dB
Signal to Noise Ratio	55 dB
Antenna Input	300 ohms (Balanced)

Multiplex Section

Circuitry	Time-switching circuit; equipped with automatic mono/stereo switch
Channel Separation	30 dB (at 1000 cps) 30 - 10,000 cps better than 20 dB

AM Section

Circuitry	Equipped with 3-gang tuning capacitor for tuned stage; bandwidth selector switch.
Frequency Range	525 - 1605 kc
IHF Usable Sensitivity	12 μv
Selectivity	BROAD: ±5 kc (–3 dB) SHARP: ±2.5 kc (–3 dB)
Antenna Input	Built in ferrite loopstick with terminal for external antenna.

Audio Section

Circuitry	Class AB1 pushpull power output circuit using two pairs of 7868 type tubes operating in two channels.
Music power Output	90 watts total (IHF rating)
RMS Rated Power Output	38 watts per channel
Harmonic Distortion	Less than 1% (at rated output)
Frequency Response	±1dB, from 30 to 20,000 cps (Over-all)
Power Bandwidth	35 to 25,000 cps IHF
Hum & Noise (at rated output)	MAG: better than 70 dB TAPE HEAD: better than 65 dB AUX: better than 85 dB
Inputs and Audio Sensitivity (for rated output)	MAGnetic PHONO: 3.0 mv. CERAMIC PHONO: 30 mv. TAPE HEAD: 2.0 mv. Tape line-output PLAYBACK(monitor-in) 150 mv. AUXiliary: 150 mv.
Output Terminals and Jacks	Speakers: choice of 8 or 16 ohms Stereo headphone jack Simultaneous tape RECording jacks, equipped with TAPE MONITOR switch Tape recording/playback jack (DIN standards)
Equalization Curves	PHONO: RIAA TAPE: NAB
Tone Controls (each channel)	BASS: boost 13 dB, cut 16 dB (at 50 cps) TREBLE: boost 9 dB, cut 11 dB (at 10,000 cps)
Filters	LOW: cut 9 dB (at 50 cps) HIGH: cut 14 dB (at 10,000 cps)
Loudness Contour	Switchable to ON-OFF boost 12 dB 50 cps, boost 10 dB at 10,000 cps, with VOLUME control set at -30 dB

Power Supply, Etc.

Power Supply	Voltage-doubler rectifier using silicon diodes
Line Requirements	115/230 volts, 1.83/0.91 amp. (switchable) 50 - 60 cps.
Maximum Power	260 watts (max)
Tubes	4-7868 3-6AN8 3-12AX7 3-6AQ8 2-6AU6 1-6BE6 3-6BA6 1-6CW4
Diodes	2-SD-1A 1-4D01 9-1A79 1-0A70 1-1S85
Transistors	3-2SB54 1-2SC372 1-2SB55
Dimensions	Overall - 17-1/2" (width) × 5-15/16" (height) × 17-5/16" (depth) - 446m/m × 150m/m × 440m/m
Weight	Net - 40 lbs. 11 oz. / 18.5 kg.

CONNECTING LOUDSPEAKER SYSTEMS

LOCATION FOR RECEIVER

Ideally, the receiver should be placed in a location that is:

- Dry, dust-free, and well ventilated;
- Not exposed directly to the sun;
- Easily accessible to an AC wall outlet;
- Conveniently situated for aerials and ground connections.

For Your Information:

- Adequate ventilation around the receiver is necessary, since when it is operating considerable heat is generated. Objects must not be placed on the receiver, particularly in a manner that will block the ventilating screen. For instance, if disc records should be placed on the receiver, not only will they prevent the heat from being dissipated through the ventilating screen but they may also be distorted because of the heat.

- Stereophonic effect or overall performance will not be impaired even if there is some distance between the receiver and the loudspeaker system units. However, if the receiver and the turntable are placed too far apart, external hum and noise may be picked up, to impair tonal quality. In addition, it is inadvisable to place the turntable on the power transformer side of the receiver (the right of the receiver, facing it) as this may result in hum being picked up. Wherever possible, it should be placed on the opposite, or left side of the receiver.

Connecting Two Loudspeaker System Units For Stereo Reproduction

Connect to Loudspeaker Terminal Plate(32)

The positive (+) and negative (−) leads of the loudspeaker systems should be connected to the positive (+) and negative (−) terminals of the Loudspeaker Terminal Plate (32) as shown in Figure 1. The leads of the left loudspeaker unit are to be connected to the two upper terminals, and the leads of the right loudspeaker unit to the two lower terminals. It is important that the positive and negative leads be connected properly to the correct terminals. Both of the two terminals on the right are the positive terminals, and the two on the left the negative terminals. The terminals on the loudspeaker units that are marked with a plus (+) symbol or a red coding dot are the positive terminals of the units. If the polarity of the loudspeaker units is not indicated, determine the proper connections in the following manner: first hook up the two loudspeaker units without paying any attention to the polarity, and then play a monophonic disc record or tune in a monophonic broadcast. If the sound comes from a point midway between the two loudspeakers, then the connections have been made properly, and all is well. If the sound seems dispersed, and there is a marked lack of bass response, then the polarity of the connections is incorrect and the two loudspeaker units are not in phase with each other. This is remedied by reversing the connections of either one of the loudspeaker units (but not both).

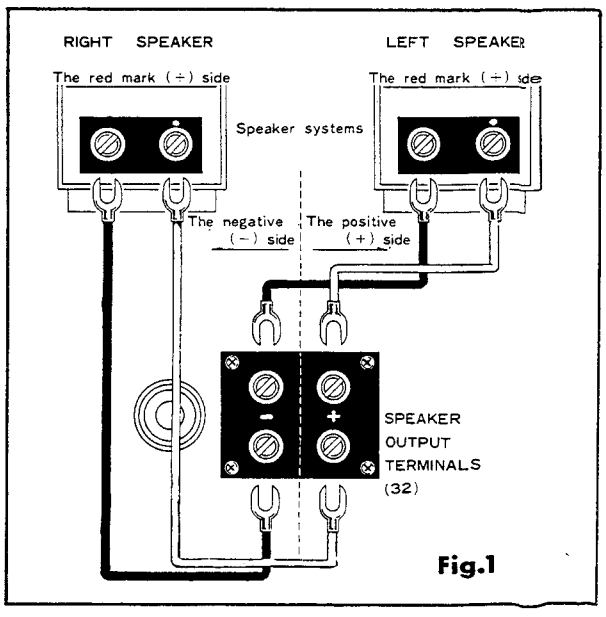


Fig.1

CONNECTING TURNTABLE

A stereophonic turntable/ tone-arm unit will have left and right channel output cables, a line power cord, and, in some instaces, a ground lead. These cables and leads are connected in the following manner (refer to Figure 2):

Connecting A Turntable Equipped With A Magnetic Pickup

Connect to Magnetic Pickup Input Jacks (23)

The output cable from the turntable for the left channel should be connected to the upper of the two Magnetic Pickup Input jacks (23), and the output cable for the right channel connected to the lower of the two jacks.

Connecting A Turntable Equipped With Crystal Or Ceramic Pickup

Connect to Crystal/Ceramic Pickup Input Jacks (24)

The output cable from the turntable for the left channel should be connected to the upper of the two Crystal/ Ceramic Pickup Input jacks (24), and the output cable for the right channel connected to the lower of the two jacks.
Note: When a monophonic turntable/ tone-arm unit is used, there will be only one output cable. This cable may be connected to either the upper (left) or lower (right) input jacks. The MODE switch (10) on the front panel is then set to either the MONO LEFT or the MONO RIGHT position, according to whichever of the channels the output cable is connected to.
The line power cord is plugged either into the outlet on the rear of the receiver or to a suitable wall receptacle. The ground lead is connected to the ground terminal of the receiver.

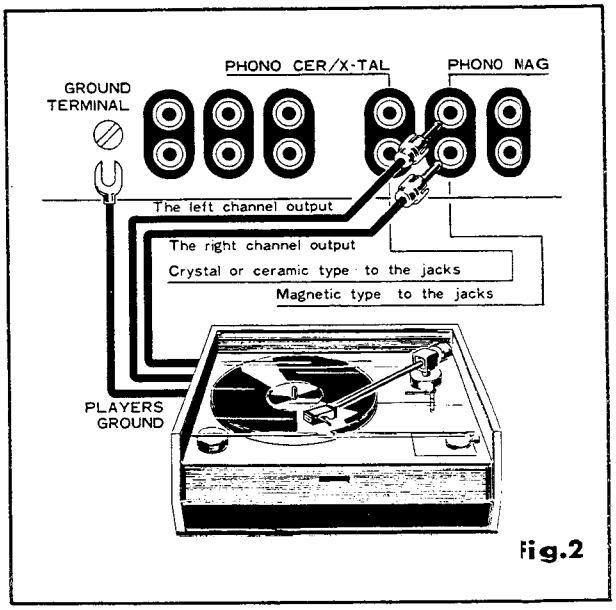


Fig.2

CONNECTING TAPE RECORDER

Using A Tape Deck (For Playback Only)

Connect To Tape Head Input Jacks (22)

When using a tape deck not equipped with playback preamplifiers, the output cables from the heads of the deck should be connected to the Tape Head Input jacks (22), as shown in Figure 3.

- When a stereophonic tape deck is used, the output cable for the left channel is connected into the upper of the two Tape Head Input jacks (22), and the cable for the right channel to the lower of the two jacks.
- When using a monophonic tape deck, the output cable lead may be connected to either of the two input jacks, the upper (left) or the lower (right). The Mode Switch (10) is then set to either the MONO LEFT or MONO RIGHT position, depending upon which of the two input jacks the output cable from the tape deck is connected to. This will provide monophonic reproduction over both loudspeaker systems.

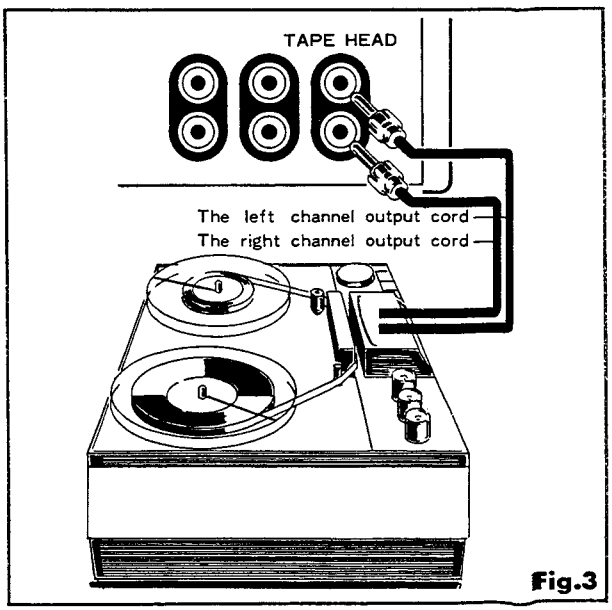


Fig.3

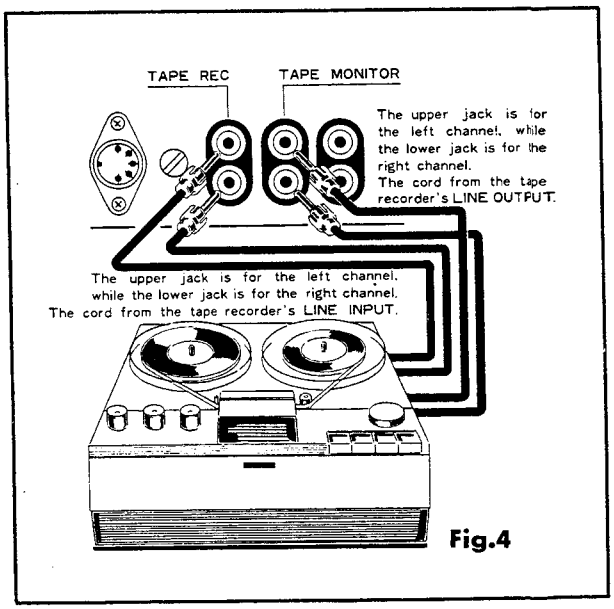
Using Tape Recorder Equipped With Recording And Playback Preamplifiers

Connect To Tape Monitor Input jacks (26) and Tape Recording Output jacks (27)

Connect the Line Input of your tape recorder to the TAPE RECording Output jacks(27) of the receiver using shielded cables. The left channel input should be connected to the upper of the two TAPE RECording jacks(27) and the right channel input to the lower of the two jacks. NOTE: These connections are for recording only, and will not provide reproduction of recorded tapes.

High Fidelity Reproduction Of Recorded Tapes

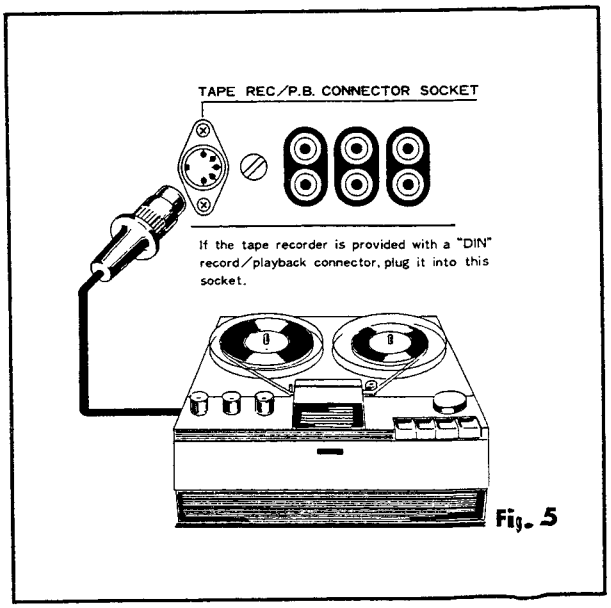
Connecting the line outputs of a tape machine to the Tape Monitor Input jacks (26) of the receiver will provide high fidelity reproduction of recorded tapes. The cable from the line output jack for the left channel of the tape machine should be connected to the upper of the two Tape Monitor Input jacks (26), and the cable for the right channel to the lower of the two input jacks. For recording or playback of monophonic tapes, there of course will be only one cable involved. This may be connected to either of the two Tape Recording Output jacks or the Tape Monitor Input jacks. The Mode switch (10) of the receiver should be set to either of the MONO positions, depending upon which of the inputs or outputs the cable from the Line Input or the Line Output of the tape recorder is connected. High fidelity reproduction of the tape material will be provided through both the left and right loudspeakers.


TAPE REC
TAPE MONITOR
The upper jack is for the left channel, while the lower jack is for the right channel.
The cord from the tape recorder's LINE OUTPUT.
The upper jack is for the left channel, while the lower jack is for the right channel.
The cord from the tape recorder's LINE INPUT.
Fig.4

Using Tape Recorder Equipped With D I N Connector

Connect To Tape Recording/Playback Connector Socket (29)

Many tape recorders are now equipped with tape recording/playback connector conforming to West Germany's DIN standards, that enable all connections for stereophonic recording and playback to be accomplished using a single multi-conductor cable. If your tape recorder is equipped with this connector all that is needed for stereo recording and playback is a single multi-conductor cable that is connected between the Tape Recording/Playback socket (29) of the receiver (refer to Figure 5) and its counter part on the tape recorder.


TAPE REC/P.B. CONNECTOR SOCKET
If the tape recorder is provided with a "DIN" record/playback connector, plug it into this socket.
Fig. 5

INSTALLING AND CONNECTING AERIALS AND GROUND

With the recent great strides in tuner circuitry and the development of extremely sensitive tuners, aerials tend to be somewhat neglected these days. However, in locations of weak signal strength or in areas that are distant from broadcasting stations, the use of a proper aerial will vastly improve reception. This is particularly so in the reception of FM multiplex stereo broadcasts, where the use of a good aerial will reduce noise immensely and greatly improve channel separation. It is safe to say that far from being unnecessary, proper aerials are still a "must" for good FM reception. Aerials should be installed in the manner described below.
An antenna lead is supplied with the receiver for reception of AM stations.

For AM Broadcasts Reception In Regions Of Weak Signals

Connect Aerial To Antenna Terminal Strip (37)

In ferro-concrete structures, apartment blocks, or in fringe areas, the simple aerial lead provided may be insufficient for good reception. In such instances, a proper outdoor aerial should be used. Dimensions for a suitable outdoor aerial are provided in Figure 6. The length of the aerial proper is approximately 50 feet, the lead-in approximately 30 feet, and the height of the aerial approximately 25 feet. These dimensions are of course merely provided for guidance, and do not have to be followed to the letter. A tree may of course be used to support the aerial. The aerial should be set up as far away from the structure housing the receiver as possible. It is important that proper insulators be used wherever necessary to prevent deterioration of sensitivity (refer to Figure 6).

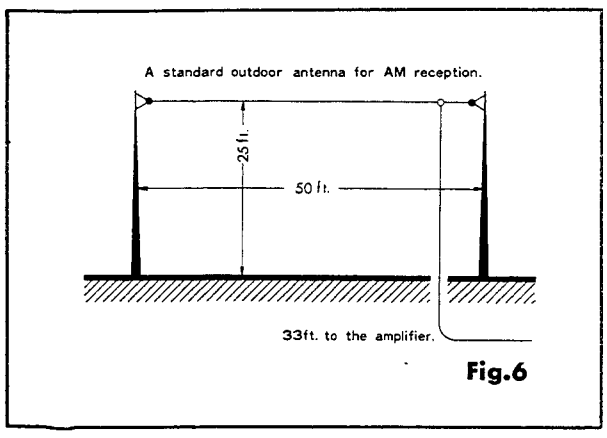


Fig.6

In Regions Of Strong Signals

Connect Aerial To Antenna Terminal Strip (37)

If the receiver is housed in a wooden structure and situated relatively close to the broadcasting stations, the antenna lead provided should be sufficient to provide satisfactory reception. The lead is to be connected to the righthand terminal of the Antenna Terminal Strip (37). The lead should be secured to a suitable wall or ceiling area, in the position providing optimum reception (refer to Figure 7).

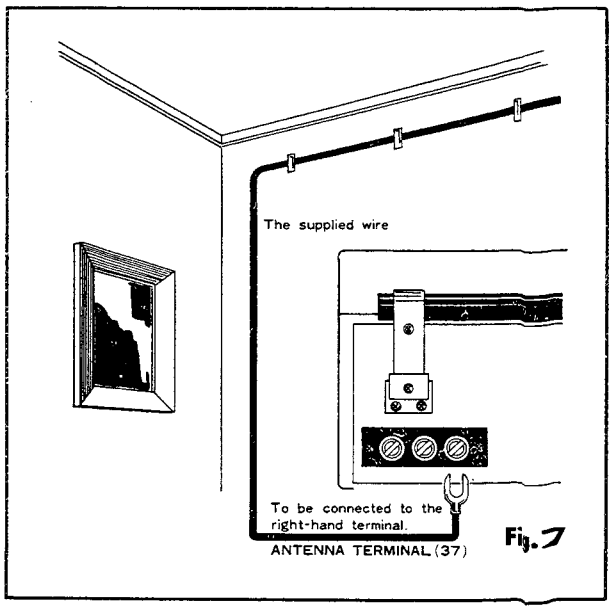


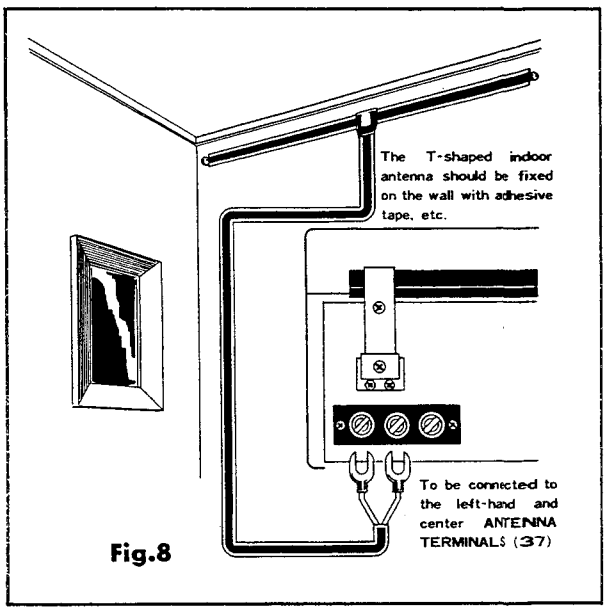
Fig.7

For FM Broadcast Reception In Regions Of Strong Signals

Connect Aerial To Antenna Terminal Strip (37)

Use the T-shaped indoor aerial supplied with the receiver. The twin leads of the lead-in section should be connected to the lefthand and center terminals of the Antenna Terminal strip (37) as shown in Figure 8. The horizontal section of the aerial should be attached to a suitable wall or ceiling area using adhesive tape after determining the position providing optimum reception by moving it around on a horizontal plane while listening to an FM station. If it turns out that the aerial proper has to be installed at some distance from the receiver and the lead-in is insufficient, the lead-in section may be extended using standard TV antenna twin-lead feeder.

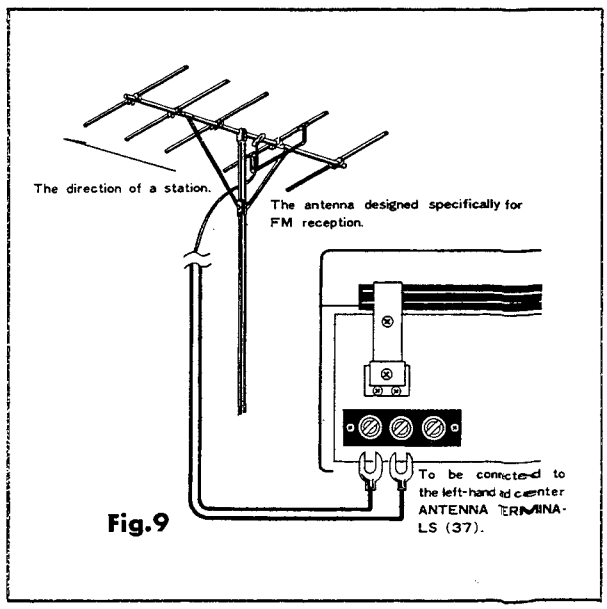
This indoor aerial will provide satisfactory reception in regions of strong signal strength, but may not be adequate in ferro-concrete structures even if the station is relatively close. In such instances, a proper FM outdoor aerial is recommended. This is described in the following paragraph.


The T-shaped indoor antenna should be fixed on the wall with adhesive tape, etc.
To be connected to the left-hand and center ANTENNA TERMINALS (37)
Fig.8

In Regions Of Weak Signal Strength

Connect Aerial To Antenna Terminal Strip (37)

In ferro-concrete structures or in locations that are a long distance from the broadcast station, a proper outdoor aerial should be used. Different types of aerials are available on the market, including two, three, five, or seven element types. The weaker the signals and the more external noise there is prevalent, the more elements will be required. Connections are made in the same manner as those for the indoor aerial, as shown in Figure 9. The aerial itself should be installed in much the same way as a TV antenna. Consult your local radio shop in choosing a suitable antenna. The aerial will have directional properties, and so it should be secured in the position providing optimum reception.


The direction of a station.
The antenna designed specifically for FM reception.
To be connected to the left-hand and center ANTENNA TERMINALS (37).
Fig.9

Ground Connection

Connect Ground Lead To Ground Terminal (28)

To keep external noise at a minimum, a good ground connection is recommended. Use a ground rod buried in the ground, or utilize your water mains. One end of the ground lead should be secured firmly to the ground proper, and the other end of the lead connected to the Ground Terminal (28). Do not utilize your gas mains as a ground, as this is a dangerous practice.

This completes the instructions on connecting the loudspeaker systems, the turntable, tape recorder, and aerial and ground. Instructions on operating the receiver follow.

OPERATING THE SX-800A

To Listen To Radio Broadcasts

Regardless of whether you plan to listen to AM or FM broadcasts, the Mode switch (10) should be set to the STEREO position.

AM Reception

1. Set the Selector switch (8) to the AM position.
2. Now manipulate the Tuning control (6) to tune in the desired station. Observe the Tuning Meter (3) while doing this, to ensure pinpoint accuracy in tuning for optimum tonal quality.
3. If there is excessive external static or noise, set the Broad/Sharp switch (5) to the SHARP position. For quality high fidelity reception, this switch should be set to the BROAD position.
4. The Volume Control (2), the Bass Controls (14 and 18), and the Treble Controls (is and 19) should be adjusted to provide the desired volume level and tonal quality.

FM Reception

1. Set the Selector switch (8) to the FM AUTO position, regardless of whether the broadcasts are stereo or mono. The receiver is equipped with a circuit that identifies and distinguishes mono and stereo broadcasts. If it is a mono signal, the sounds are reproduced over both channels, and if it is a stereo signal, it activates the FM multiplex circuit and provides stereophonic reproduction over the two channels. When a stereo broadcast is tuned in, the Stereo Indicator Light (4) will go on.
2. Set the AFC switch (5) to the OFF position, and then manipulate the Tuning Control (6) to tune in the desired station. Observe the Tuning Meter (3) while doing this, to ensure pinpoint accuracy in tuning for optimum tonal quality.
   Note: Set the Muting Switch (7) to the ON position, to eliminate the noise heard between stations as you tune across the FM band.
3. After the desired station has been tuned in, the AFC switch (5) may be set to the ON position. This will serve to prevent station drift as the receiver warms up.
4. To achieve correct volume balance between the right and left channels, adjust the Balance Control (11) by turning it in either direction from the center position. The Volume Control (2), the Bass Controls (14 and 18), and the Treble Controls (15 and 19) should be adjusted to provide the desired volume level and tonal quality.

   Note:If a stereo broadcast is extremely weak and has a large noise content, when the SELECTOR switch (8) is set to the FM AUTO position, the circuit will automatically be set to provide monophonic operation (the Stereo Indicator Light will not go on in such a case).
   In this instance, the SELECTOR switch should be set to FM MONO position. This should reduce noise although of course there will be no stereo effect.

To Play Disc Records

Set the Mode Switch (10) to the STEREO position.

Reproduction Of Stereophonic Records

1. Set the Selector Switch (8) to the PHONO STEREO position.
2. Adjust the Balance Control (11) to achieve the correct volume balance between the two channels.
   The Volume Control (2), the Bass Controls (14 and 18), and the Treble Controls (15 and 19) should be adjusted to provide the desired volume level and tonal quality.

Reproduction Of Monophonic Records

1. Set the Selector Switch (8) to the PHONO MONO position. The Volume Control (2), the Bass Controls (14 and 15), and the Treble Controls (18 and 19) should be adjusted to provide the desired volume level and tonal quality.

Using Tape Recorder In Conjunction With Receiver

Recording Broadcasts Or Disc Records

● Set the Selector Switch (8) to the position providing reproduction of the program source that is to be recorded on tape: AM, FM AUTO, FM MONO, PHONO STEREO, PHONO MONO, or TAPE HEAD for tape reproduction.

● To record a radio broadcast, set the Selector Switch (8) to provide reception of the desired broadcast, and then tune in the desired station while observing the Tuning Meter (3) for accurate tuning.

● If you wish to make the recording as you are listening to the program being recorded through the loudspeaker systems or headphone, the Tape Monitor (9) is to be set to the OFF position, and if you wish the recording to be made in silence without it being reproduced over the loudspeaker systems or headphone, set the switch to the ON position.

● The recording level is adjusted by means of the tape recorder's level controls.

Note: When making a recording on tape, the settings of the Mode (10), Volume Control (2), the Bass Controls (14 and 18), and Treble Controls (15 and 19) have no effect upon the recording. If the tape recorder being used is a two-head model, there will be no sound heard from the loudspeakers if the Tape Monitor switch (9) is set to the ON position. However, rest assured that the recording is being made.

Reproducing Recorded Tapes

Using Tape Monitor Jacks

● Set the Tape Monitor switch (9) to the ON position.

● If the recorded tape is a stereophonic tape, the Mode Switch (10) should be set to the STEREO position, and if it is a monophonic tape, this switch should be set to either the MONO LEFT or the MONO RIGHT positions, depending upon which of the two inputs the signal is being fed to. In either case, reproduction will be provided over both loudspeaker systems. Adjust the Volume Control (20), the Bass Controls (14 and 18) and the Treble Controls (15 and 19) to achieve the desired volume level and tonal quality.

Using Tape Head Jacks

●Set the Selector Switch (8) to the TAPE HEAD position.
●If the recorded tape is a stereophonic tape, the Mode Switch (10) should be set to the STEREO position, and if it is a monophonic tape, this switch should be set to either the MONO LEFT or the MONO RIGHT positions, depending upon which of the two inputs the signal is being fed to. In either case, reproduction will be provided over both loudspeaker systems. Adjust the Volume Control (2), the Bass Controls (14 and 18), and the Treble Controls (15 and 19) to achieve the desired volume level and tonal quality.

Function Of The Tape Monitor Circuitry

If your tape recorder is equipped with independent recording, playback and erasing heads, the connections are made as described in the previous paragraphs. Functioning will be as follows:
●With the Tape Monitor Switch (9) set to the ON position, the sounds that have just been recorded through the recording head are then picked up by the playback head and fed back again to the amplifier for high fidelity reproduction. This thus serves to monitor the recording in progress.
●With the Tape Monitor Switch (9) set to the OFF position, the sounds that are about to be recorded are simultaneously reproduced through the loudspeaker systems.

Note: Thus, by switching the Tape Monitor (9) back and forth between its ON and OFF position, the state of the recording in progress can be checked by comparing it with the original sounds.

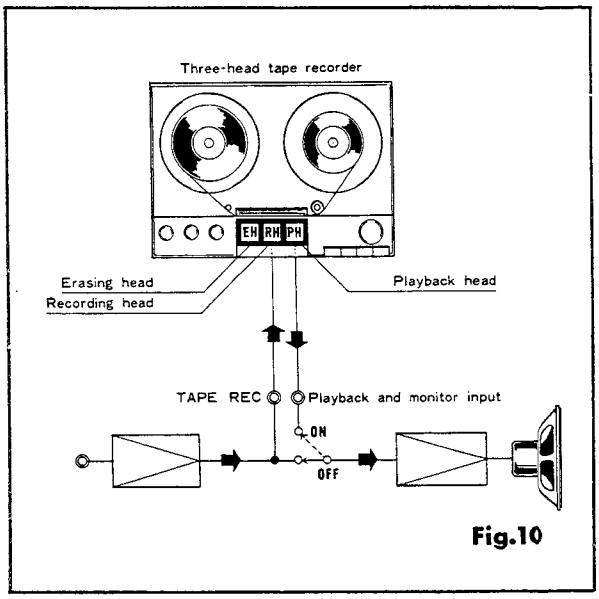


Fig.10

CUSTOM-INSTALLATION OF THE SX-800A

●The cabinet in which the receiver is to be installed should conform to the measurements given in Figure 11. It is important that the lower edge of the cutout for the receiver is on a level with the board on which the receiver rests, and does not protrude above this level.
●Remove the metal screen cover of the receiver, the four mounting feet on the bottom of the receiver, and the three screws on the rear fastening the bottom cover to the receiver chassis. Also remove the two metal mounts that will be found on both sides of the dial mounting.

●Now install the receiver by inserting it through the cutout from the front, and secure it in position as illustrated in Figure 12, using the two L-shaped bolts, washers, and butterfly nuts provided. The two bolts should be inserted into the holes provided on the side of the chassis, passed through the bottom board, and then fastened from below using the butterfly nuts.
Note: If there is to be a shelf or turntable compartment situated above the receiver, a clearance of at least 8 inches should be provided above the upper extremities of the receiver for proper ventilation (refer to Figure 12).

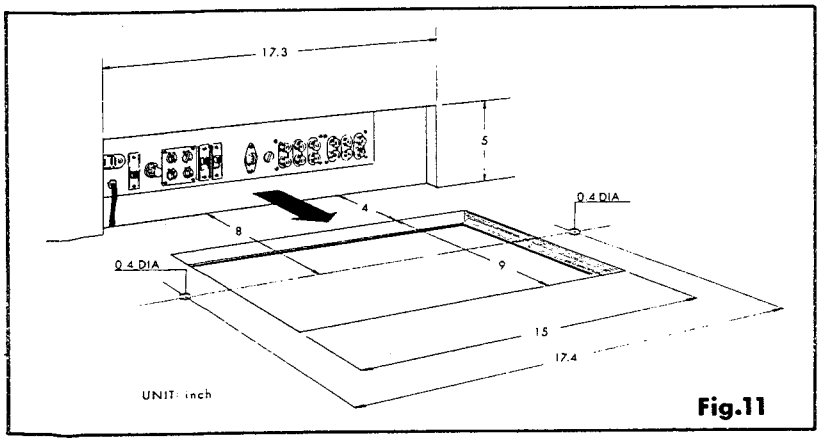


Fig.11

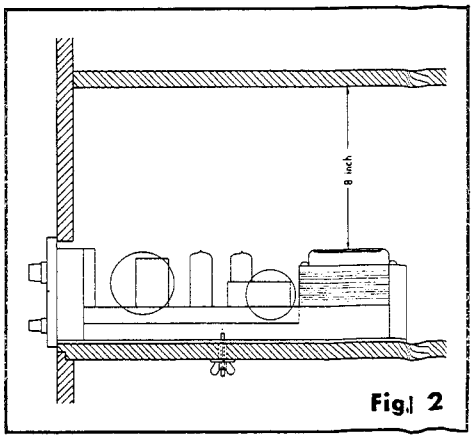


Fig. 12

TROUBLE SHOOTING

POWER CIRCUIT

SYMPTOMS	POSSIBLE CAUSE	TO BE CHECKED
Does not light up or function at all.	1) No power supplied. a. Severed power cable. b. Defective power switch. c. Fuse blown or no fuse inserted. 2) Fuse blows a. Power transformer heat up. b. Defective insulation in OPT between primary and secondary. c. Short between electrodes in tubes or diodes. d. Defective electrolytic capacitor. 3) Emits smoke. a. Short in filament wiring b. Defective tube socket	 Check where cable enters plug. Check contact point. Replace or insert new fuse. Short between transformer windings layer. Replace OPT. Mainly in rectifier or in power tube. Mainly in ripple filter circuit. Check wiring by removing tubes. Mainly poor insulation of wafer-type socket.
Light up, but does not function	1) Insufficient plate voltage a. Rectifier tube diode burned out. b. Resistor in ripple filter circuit burned out. c. No rectifier 2) No voltage at plate circuit. a. Primary windings of OPT burned out.	 Replace tube or diode. Replace resister.

AUDIO CIRCUIT

SYMPTOMS	POSSIBLE CAUSE	SYMPTOMS	POSSIBLE CAUSE
Does not function	1) Power amplifier section a. Severed output transformer(s) windings(primary and secondary) b. Power output tubes damaged or heaters burned out c. Plate load resistors between each stages burned out. 2) Preamplifier section a. Plate load resistors between each stages burned out. b. Poor contact(s) in input selector switch or mode switch. c. Defective cathode resistor. d. Defective de-coupling resistors between each stages. e. Defective tubes.	Hum	1) Tubes a. Defective tubes, particulary short between electrodes. 2) Resistors a. Defective load resistor in phase inverter circuit on cathode end. 3) Capacitors a. Defective electrolytic capacitors in filter circuit or in de-coupling circuit.
Noises	1) Tubes a. Defective tubes. 2) Resistors a. Defective plate resistors, negative feed back resistors, or cathode resistors. 3) Capacitors a. Defective capacitor, coupling phase compensation circuit. 4) Potentiometers a. Noise emanating from defective volume control or other variable resistors.	Distortion	1) Transformer a. Defective output transformer, output tubes or rectifier diode. b. Short between primary and secondary. 3) Resistor a. Defective grid leak resistor. 4) Rectifier a. Defective rectifier in bias circuit when fixed bias circuit employed.

AM TUNER CIRCUIT

SYMPTOMS	POSSIBLE CAUSE NOTE
Does not function	a. Defective tubes b. Poor contact or defective insulation in input selector or mode switch b. Burnt out resistor in power supply d. Severed winding(s) in IF transformer e. Severed oscillator coil winding f. Short of variable capacitor (tuning) inside mechanism g. Tube in detector circuit is defective
Poor sensitivity	a. Severed winding in RF coil b. Out of alignment in IF transformer c. Out of tracking alignment d. Defective tubes e. Poor insulation of trimming capacitors
Distortion	a. Defective tubes b. Defect in AVC circuit
Noise	a. Noise emanating from defective tube b. Occasional short between fixed plate and rotor plate of variable capacitor. c. Poor soldering or short between parts.

FM TUNER CIRCUIT

SYMPTOMS	POSSIBLE CAUSE NOTE
Does not function	a. Defective tubes b. Severed winding(s) in IF Transformers c. Poor contact or defective insulation in rotary switch d. Burnt out resistor(s) in power supply e. Loose oscillation coil connection, or poor soldering f. Poor contact between sockets and tube pins g. Defective germanium diode(s)
Poor sensitivity	a. IF transformers out of alignment b. Tracking out of alignment c. Defective tubes
Distortion	a. Discriminator IF transformer out of alignment b. Defective tubes c. Defective germanium diode(s)
Noises including Microphonic	a. In most cases, due to defective tubes in RF amplifier or local oscillator tube(s) b. Poor contact between sockets and tube pins c. Antenna input is not enough d. Inproper mounting of variable capacitor e. Poor soldering or short between parts f. Excessive long leads or resistors in RF or IF circuits

MULTIPLEX TROUBLE SHOOTING AND REPAIRS

SYMPTOMS	PROBABLE CAUSE	REPAIRS NECESSARY
Poor separation	1. Pilot amplifying circuit (drift in 19kc transformer, or other faulty components). 2. Composite circuit (drift in separation control; or other faulty components).	1. Readjustment (T501, T502, T503); replacement of components. 2. Readjustment of separation control readjustment of components.
Excessive distortion in stereo reception	1. Pilot amplifier circuit 2. Composite circuit (6AQ8, etc.) 3. Drop in line power voltage.	1. Readjustment or replacement of components. 2. Vicinity of 6AQ8 3. Provide supply of proper voltage.
Distortion prevalent at points of high	1. Inadequate pilot level. 2. Drop in line power voltage.	1. Readjustment; replacement of faulty components. 2. Check power supply section.
Extreme drop in volume in stereo reception	1. Composite amplifying circuit(Faulty 6AQ8 or components in its vicinity)	1. Replace 6AQ8 or other faulty components in vicinity of 6AQ8.
Separation control completely ineffective (No. change even when separation control adjusted.)	1. Faulty separation control variable resistor (burntout)	1. Replace component.
Poor separation on one channel only	1. Faulty 38kc filter (one channel only). 2. One of secondary windings of 38kc transformer severed.	1. Replace component. 2. Replace component.
Stereo indicator fails to function	1. Faulty pilot lamp. 2. Improper working point.	1. Replace component. 2. Readjust indicator sensitivity control(VR 401).

*Other malfunctions should be dealt in the same way as for other amplifiers.

ALIGNMENT INSTRUCTION

Test Equipment:
1) Signal Generator
2) VTVM
3) Oscilloscope
4) Sweep Generator
5) Audio Generator
6) MPX Generator

FM section

Position of Switch: SELECTOR·····FM MONO MODE·····STEREO
Volume Control Setting Fully Counterclockwise (MINIMUM)

STEPS	IN PUT			Dial Setting	UT PUT	Alignment	
	Equipment	Coupling	Freq Mod			Adjust	Remarks
1	Sweep Generator	Pin 1 of V_{15} (6AU6) ⑤	10.7 C 100db	Point of no interference as near as 90MC	Oscilloscope to Pin 5 of T_9 ⑥	Bottom of T_9	Adjust so that the angle of the sloped straight line portion of the S-slope is as sharp as possible.
2	〃	〃	〃	〃	〃	Top of T_9	Adjust so that the center point of the S-slope is at the center of the marker.
	Adjust to get a similar curve as fig.1						
3	〃	Pin 1 of V_{14} (6AU6) ⑦	10.7MC 100db	〃	Oscilloscope to Pin 2 of T_8 ⑧	Top and bottom of T_8	Adjust so that the waveform is as large as possible, and the center point is at the center of the marker.
4	〃	Pin 1 of V_{13} (6BA6) ⑨	10.7MC 70db	〃	〃	Top and bottom of T_7	〃
5	〃	Pin 1 of V_{12} (6BA6) ①	10.7MC 60db	〃	〃	Top and bottom of T_6	〃
6	〃	FM antenna terminal ⑩	10.7MC 50db	〃	〃	Top and bottom of T_{304}	〃
	Adjust to get a similar curve as fig.2						
7	Signal Generator	FM antenna terminal ⑩	90MC 400% 18db 30%	90MC	AC VTVM to audio output ②	T_{303}	Adjust to get MAX detection
8	〃	〃	106MC 18db 〃	106MC	〃	CT_{301}	〃
9	Repeat STEPS 7and 8 several times						
10	〃	〃	90MC 18db 〃	90MC	〃	T_{301} , T_{302}	〃
11	〃	〃	106MC 18db 〃	106MC	〃	VC_{301} AT, VC_{301} BT	〃
12	Repeat STEPS 10 and 11 several times						
13	Adjustment of Muting circuit: Refer to REMARKS for adjustment of STEP7 under instructions for MPX section and confirm that these adjustments have been carried out correctly.						

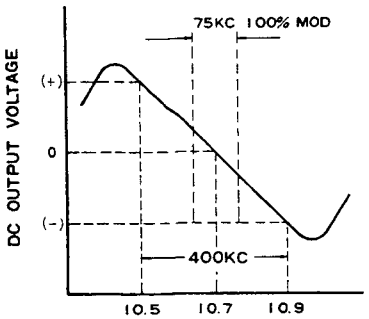
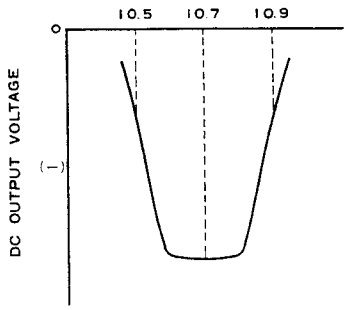


fig 1 FREQ DEVIATION MEGACYCLES



fi 2 FM SELECTIVITY CHARACTERISTIC

MPX section

Position of switch: SELECTOR·····FM AUTO AFC·····OFF
MUTING·····OFF
Position of Volume Control: Fully counterclockwise.

STEPS	Circuit to be adjusted	Equipment IN PUT			Connect	Alignment	
		Coupling	IN PUT Signal	Modu	VTVM	Adjust	Remarks
1	67kc Reject Filter	Audio Oscillator to (X1)	65.5kc 300mV		R504 (X2)	6565.5kc TC501	Adjust to get MIN deflection
			68.5kc 300mV			68.5kc TC502	
2	Sub Carrier Circuit	Multiplex Generator to FM antenna terminal	19kc Pilot Signal 60db	10%	T503 (X3)	T501 T502 T503	Adjust to get MAX deflection from T503 to T502 and T501 reversely, repeating several times
3	Pilot Phase	〃	Composit Signal each channel 60db	19kc Pilot 10% & Sub & Main 400% 30%	(X4) (X5)	T501 T502 T503	Adjust to get MAX output and MIN distortion confirm each channel
4	Audio Gain Balance	〃	〃	〃	〃	VR501	Adjust to get same output to each channel
5	Separation Control	〃	〃	〃	〃	VR7	Adjust to get MIN output of reverse channel confirm each channel
6	Repeat STEPS 3, 4 and 5 several times						
7	STEREO Indicator light	〃	Composit Signal each channel 25db	19kc Pilot 10% & Sub & Main 400% 30%	〃	VR401	Adjust to light stereo ind. lamp when 19kc Pilot signal is applied.

1) Couple VTVM and Oscilloscope in parallel so as to observe ripples simultaneously.
2) At STEP 2 1 megohm is indispensable in coupling VTVM to pin 3 of T503 in series.
3) At STEP 3, 4 and 5 apply the Composite signal to FM antenna terminal and measurement must be made on each night and left channel separately.

AM section

Position of Switch: SELECTOR·····AM MODE·····STEREO
Volume Control Setting: Fully Counterclockwise

STEPS	IN PUT			DIAL Setting	OUT PUT	Alignment	
	Equipment	Coupling	Freq Mod			Adjust	Remarks
1	Sweep Generator	Pin1 of V_{12} (6BA6) ①	455kc	Point of no interference as near as 535kc	Oscilloscope to audio output ②	T_5 top and bottom	Adjust to get MAX sensitivity and symmetry
2	On step 3, at first set the band width set the Selecter switch(S_9) T6 SHARP after that (S_9) to BROAD. From step4 (S_9) should be set at SHARP Position.						
3	〃	Pin 7 of V_{11} (6BE6) ③	〃	〃	〃	T_4 top and bottom	〃
4	Signal Generator	Antenna terminal through dummy ④	600kc 400℅ 30%	600kc	ACVTVM to audio ② output	T_3	Adjust to get MAX deflection
5	〃	〃	1400kc 400℅ 30%	1400kc	〃	CT_3	〃
6	Repeat STEPS 4 and 5 several times						
	Signal Generator	〃	600kc 〃	600kc	〃	T_2	〃
8	〃	〃	1000kc 〃	1000kc	〃	Bar antenna(T_1) Adjusting Ring	〃
9	〃	〃	1400kc 〃	1400kc	〃	CT_1, CT_2	〃
10	Repeat STEPS 7, 8 and 9 several times						

LAYOUT OF THE SX-800A

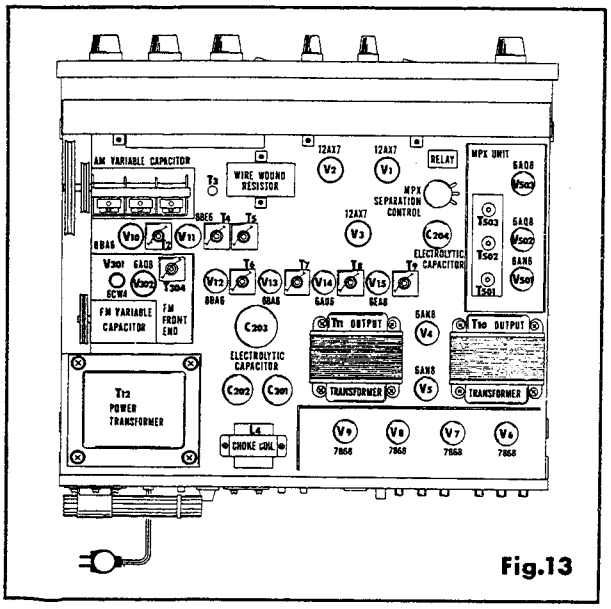


Fig.13

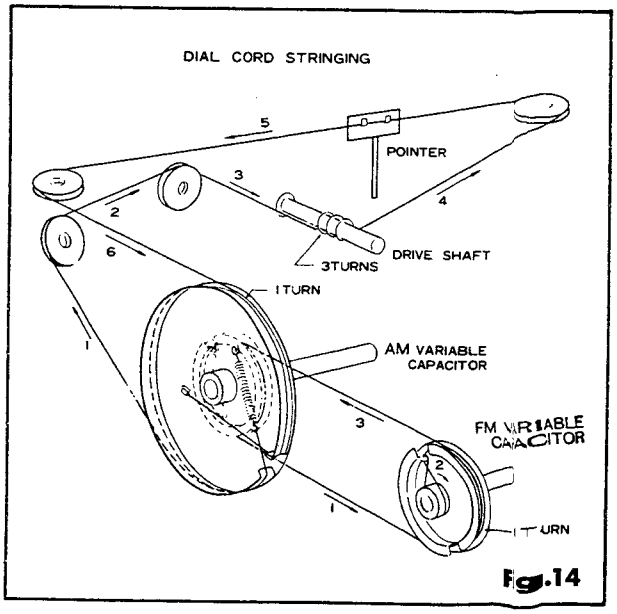
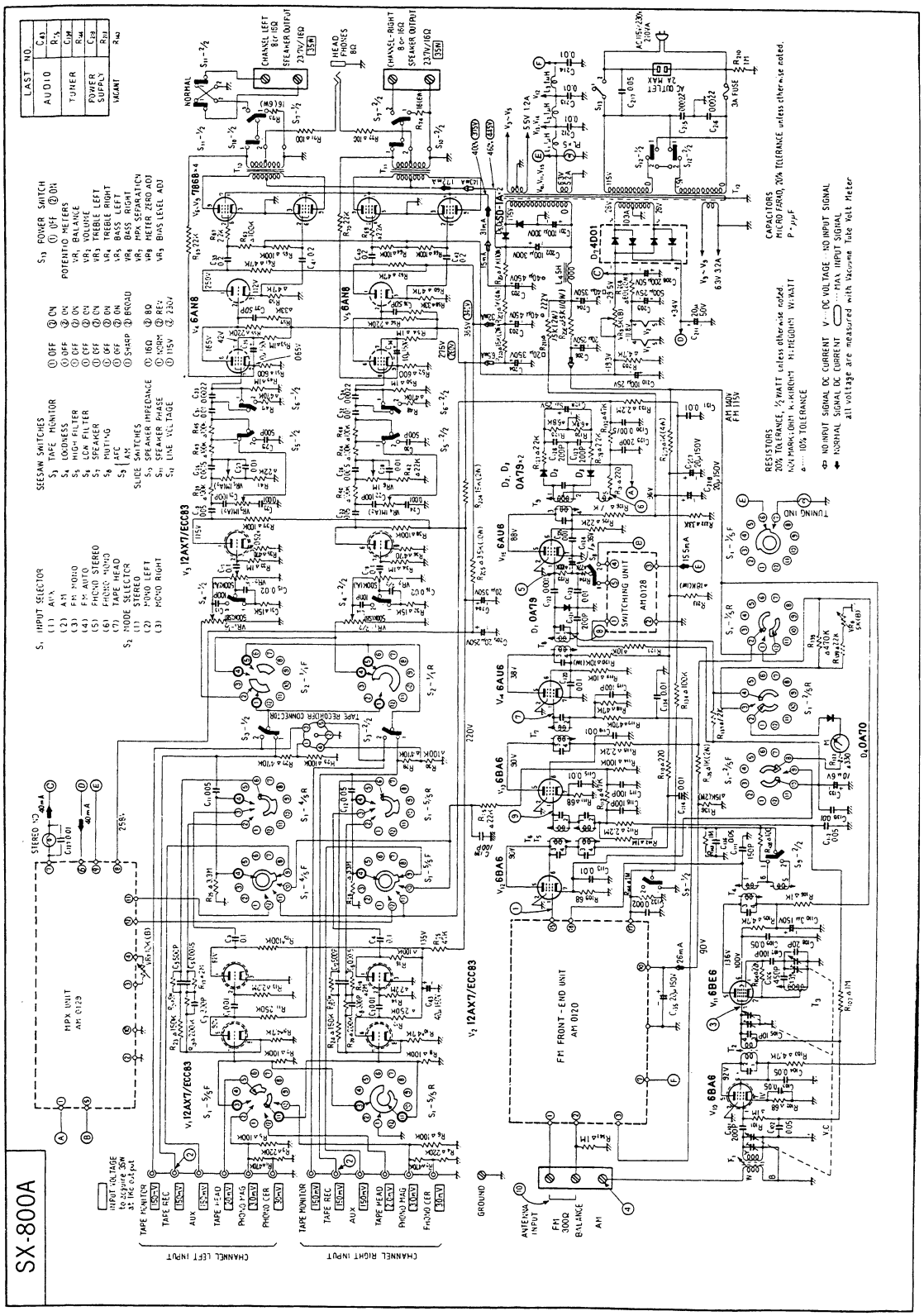


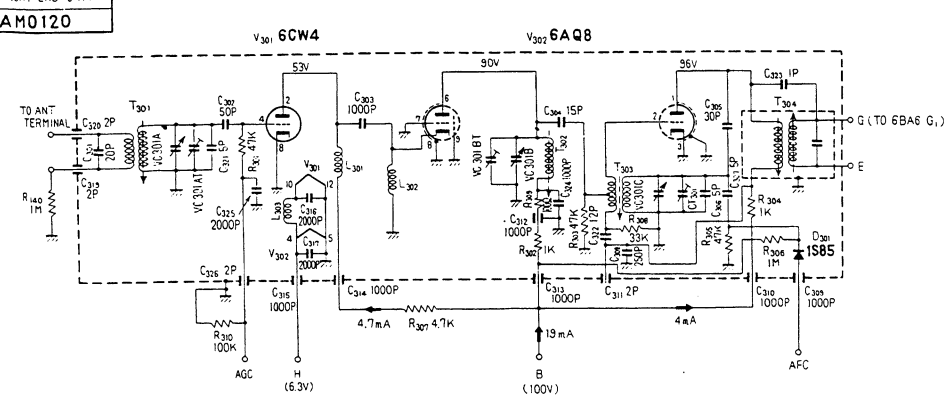
Fig.14

CIRCUIT OF THE SX-800A



FM FRONT END UNIT

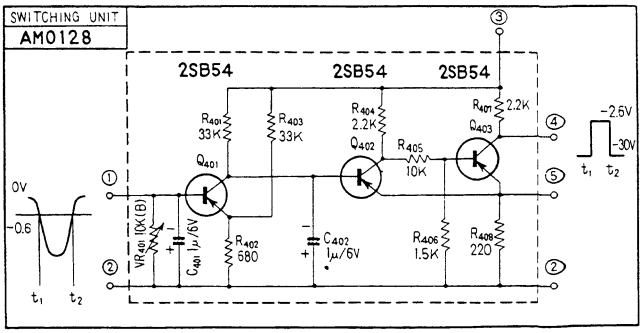
AM0120



LAST NO.	
C326	R310

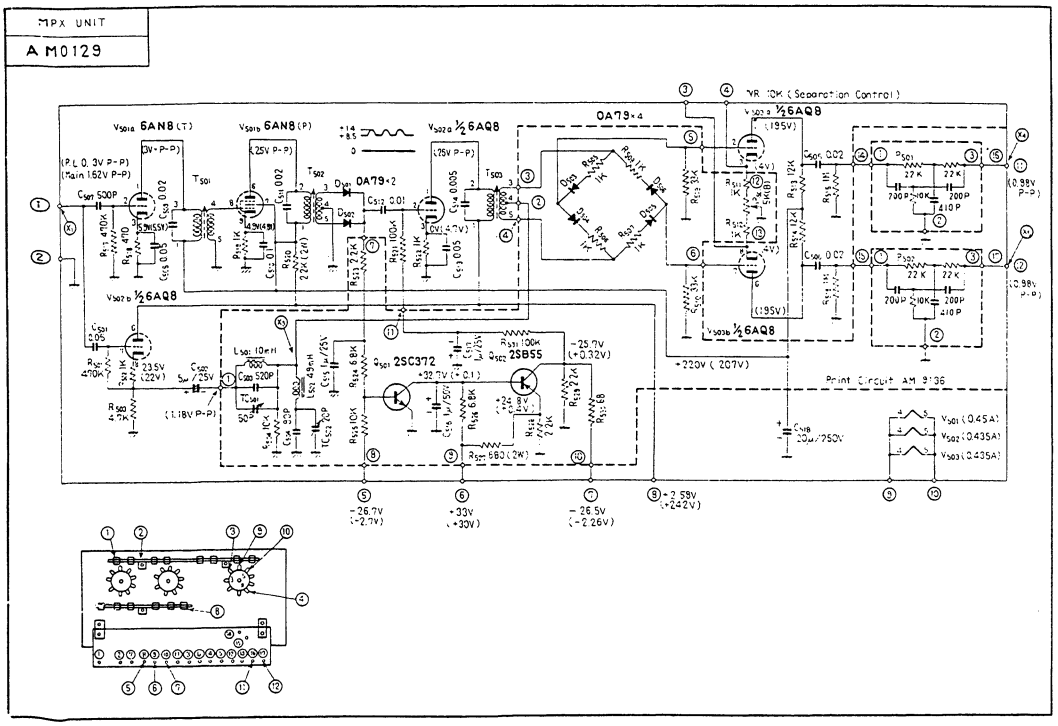
SWITCHING UNIT

AM0128



MPX UNIT

AM0129



PARTS LIST OF THE SX-800A

CAPACITORS

In μF 10% tolerance for all fixed Capacitors uhless otherwise noted P=μμF

Symbol	Description				Part No.
C 1	Oil paper	0.01			
C 2	〃	〃			
C 3	Mylar	0.1	20%		
C 4	〃	〃	〃		
C 5	Ceramic	0.0015			
C 6	〃	〃			
C 7	Mica	300P			
C 8	〃	〃			
C 9	〃	500P			
C 10	〃	〃			
C 11	Mylar	0.05	20%	50V	
C 12	〃	〃	〃	〃	
C 13	Mica	100P			
C 14	〃	〃			
C 15	Mylar	0.02		50V	
C 16	〃	〃		〃	
C 17	〃	0.1	20%	〃	
C 18	〃	〃	〃	〃	
C 19	〃	0.05	〃		
C 20	〃	〃	〃		
C 21	Mica	100P			
C 22	〃	〃			
C 23	Ceramic	0.001			
C 24	〃	〃			
C 25	〃	0.0015			
C 26	〃	〃			
C 27	〃	0.01			
C 28	〃	〃			
C 29	Mica	500P			
C 30	〃	〃			
C 31	Ceramic	0.01			
C 32	〃	〃			
C 33	〃	0.0022			
C 34	〃	〃			
C 35	Electrolytic	10		150V	
C 36	〃	〃		〃	
C 37	Mica	50P			
C 38	〃	〃			
C 39	Mylar	0.2			
C 40	〃	〃			
C 41	〃	〃			
C 42	〃	〃			
C 43	Electrolytic	40		150V	
	〃	20		〃	
C 101	Mica	200P			
C 102	Oil paper	0.05			
C 103	〃	〃			
C 104	〃	〃			
C 105	Ceramic	10P			
C 106	Mica	450P	±3%		
C 107	Ceramic	100P			
C 108	〃	20P			
C 109	Oil paper	0.05			
C 110	Electrolytic	3		150V	
C 111	Mica	150P			
C 112	Oil paper	0.05			
C 113	Ceramic	0.01			
C 114	〃	〃			
C 115	〃	〃			
C 116	Mica	100P			
C 117	〃	〃			
C 118	Ceramic	0.01			
C 119	〃	100P			
C 120	〃	0.01			
C 121	〃	200P			
C 122	〃	1000P			
C 123	〃	0.09			
C 124	Electrolytic	1		35V	
C 125	Ceramic	0.01			
C 126	Mica	200P			
C 127	〃	〃			
C 128	Electrolytic	5		25V	
C 129	Mica	200P			

Symbol	Description			Part No
C130	Ceramic	0.0015		
C131	〃	0.01		
C132	〃	0.002		
C133	Electrolytic	10	6V	
C134	Ceramic	0.01		
C135	Electrolytic	20	150V	
C136	Oil paper	0.05		
C137	Ceramic	0.01		
C138	〃	〃		
C139	Mica	100P		
C201	Electrolytic	100	300V	AC5224
C202	〃	〃	〃	〃
C203	〃	40+40	450V	AC5214
C204	〃	40+20+20	350V	AC5222
C205	〃	20	250V	
C206	〃	〃	〃	
C207	〃	〃	150V	
C208	〃	200	50V	
C209	〃	500	25V	
C210	〃	100	〃	
C211	〃	20	50V	
C212	Ceramic	0.01		
C213	〃	〃		
C214	〃	〃		
C215	〃	0.0022	1.4KV	
C216	〃	〃	1.4KV	
C217	Oil paper	0.05		
C218	Electrolytic	20	150V	
VC1	AM Variable Air Capacitor			AC6428

RESISTORS

10% tolerance ½ watt unless otherwise marked or noted.
K=Kilohm M=Megohm

Symbol	Description		Part No
R 1	Composition	470K	
R 2	〃	〃	
R 3	〃	220K	
R 4	〃	〃	
R 5	〃	100K	
R 6	〃	〃	
R 7	〃	〃	
R 8	〃	〃	
R 9	Carbon Low Noise	4.7K	
R10	〃	〃	
R11	〃	250K	
R12	〃	〃	
R13	Composition	2.2M	
R14	〃	〃	
R15	Carbon Low Noise	100K	
R16	〃	〃	
R17	〃	2M	
R18	〃	〃	
R19	〃	200K	
R20	〃	〃	
R21	Carbon	5M	
R22	〃	〃	
R23	Composition	150K	
R24	〃	〃	
R25	〃	3.3M	
R26	〃	〃	
R27	〃	470K	
R28	〃	〃	
R29	〃	100K	
R30	〃	〃	
R31	〃	15K	
R32	〃	〃	
R33	〃	1M	
R34	〃	〃	
R35	〃	470Ω	
R36	〃	〃	
R37	〃	100K	
R38	〃	〃	
R39	〃	〃	
R40	〃	〃	
R41	〃	22K	
R42	〃	〃	

Symbol	Description				Part No.
R43	Composition	100K			
R44	〃	〃			
R45	〃	〃			
R46	〃	〃			
R47	〃	470K			
R48	〃	〃			
R49	〃	1M			
R50	〃	〃			
R51	Carbon	600Ω			
R52	〃	〃			
R53	Composition	1M			
R54	〃	〃			
R55	〃	220K			
R56	〃	〃			
R57	〃	33K			
R58	〃	〃			
R59	〃	47K	5%		
R60	〃	〃	〃		
R61	〃	〃	〃		
R62	〃	〃	〃		
R63	〃	100K			
R64	〃	〃			
R65	〃	〃			
R66	〃	〃			
R67	〃	2.2K			
R68	〃	〃			
R69	〃	22K	5%		
R70	〃	〃	〃		
R71	〃	100Ω			
R72	〃	〃			
R73	Wire Wound	16Ω		6W	
R74	〃	〃		〃	
R75	〃	4.7K			
R101	〃	1M			
R102	〃	68Ω			
R103	〃	4.7K			
R104	〃	22K			
R105	〃	47K			
R106	〃	1K			
R107	〃	1M			
R108	〃	100Ω			
R109	〃	68Ω			
R110	〃	220Ω			
R111	〃	68Ω			
R112	〃	2.2M			
R113	〃	47K			
R114	〃	100K			
R115	〃	22K			
R116	〃	2.2K			
R117	〃	470K			
R118	〃	47K			
R119	〃	10K			
R120	〃	〃			
R121	〃	〃			
R122	〃	330Ω			
R123	〃	100K			
R124	〃	22K			
R125	〃	〃			
R126	〃	1K			
R127	〃	2.2K			
R128	〃	〃			
R129	〃	6.8K			
R130	〃	〃			
R131	〃	220Ω			
R132	〃	47K			
R133	〃	2.2M			
R134	〃	100K			
R135	Wire Wound	1K		2W	
R136	〃	15K		〃	
R137	Composition	1.2K			
R138	〃	470K			
R139	〃	2.2			
R140	〃	47K			
R141	〃	1M			
R142	〃	〃			
R143	〃	〃			
R144	〃	〃			

Symbol	Description				Part No.
R201	Wire Wound	1K	10W		
R202	〃	1K	4W		
R203	〃	15K	2W		
R204	〃	15K	2W		
R205	〃	3.5K	10W		
R206	〃	1.5K	〃		
R207	〃	1K	4W		
R208	〃	60Ω	20W		
R209	Composition	4.7K			
R210	〃	1M			
R211	Wire Wound	15K	2W		
R212	Composition	33K			
R213	〃	18K			

POTENTIOMETERS

Symbol	Description	Part No.
VR1	500K Dual (Balance)	AR8541
VR2	〃 (Volume)	AR8542
VR3	1M Single (Tre le)	AR8227
VR4	〃 (Treble)	〃
VR5	〃 (Bass)	〃
VR6	〃 (Bass)	〃
VR7	10K Trimmer (MPX Separation)	AR0014
VR8	5K 〃 (AM Tuning Meter Sens)	AR0016
VR9	5K 〃 (Bias Cont)	AR0016

TRANSFORMERS AND COILS

Symbol	Description	Part No.
T 1	Bar Antenna Coil	AL0212A
T 2	AM RF Coil	AT4101
T 3	AM OSC Coil	AT4301
T 4	AM IFT	AT7111A
T 5	IFT	AT8114
T 6	〃	〃
T 7	AM IFT	AT7210A
T 8	FM IFT	AT8114
T 9	〃	AT8208
T10	Output Transtormer	AT6134
T11	〃	〃
T12	Power Transformer	AT5253
L 1	Filament Choke Coil	AL0502
L 2	〃	〃
L 3	〃	〃
L 4	Choke Coil	AL5102

TUBES AND DIODES

Symbol	Description	Part No.
V 1	12AX7 (Audio Amp)	
V 2	〃	
V 3	〃	
V 4	6AN8 (Phase inv Driver)	
V 5	〃	
V 6	7868 (Power Amp)	
V 7	〃	
V 8	〃	
V 9	〃	
V10	6BA6 (AM RF IFAMP)	
V11	6BE6 (AM Conv)	
V12	6BA (AM RF IFAMP)	
V13	〃	
D 1	0A79 (FM Limiter)	
D 2	〃 (FM Det)	
D 3	〃 〃	
D 4	0A70 (Tuning Meter)	
D 5	SD-1A (Rectifier)	AG3105
D 6	〃 (〃)	〃
D 7	4D01 (〃)	AG3112

SWITCHES

Symbol	Descrption	Part No.
S 1	Input Selector Switch	AS1623
S 2	Mode Selector Switch	AS1625
S 3	Seesaw Switch	AS0210
S 4	〃	〃
S 5	〃	〃
S 6	〃	〃
S 7	〃	〃
S 8	〃	〃
S 9	〃	〃
S10	Slide Switch	AS6216
S11	〃	〃
S12	〃	〃
S13	Power Switch	AS0213

MISCHELLANEOUS

Symbol	Description	Part No.
	FM Front-End Unit	AM0120
	FM Switching Unit	AM0128
	FM MPX Unit	AM0129
	Dress Panel	AM21063
	Side Panel	AM21021
	Metal Case	AM3370
	Foot	AM6103
	Dial Scale	AA3327A
	Dial Pointer	AA3174
	FM Stereo Indicator	AA5029
	Tuning Meter	AA9105
	Dial Shaft	AM4935
	Dial Pulley (Large)	AM4185
	Dial Pulley (Small)	AM4104
	Pulley	AM4209
	Knob (Power SW, Tone Control, Balance)	AA1182
	Knob (Tuning)	AA1185
	Knob (Volume)	AA1188
	Knob (Band, Mode Selector)	AA1190
	Stopper, Voltage Selector	AA4207
	Pilot Light (6.3V)	AV7206
	Pilot Light (28V)	AV7210
	Pilot Light Socket	AK4002
	Fuse (3A)	AV7306
	Fuse Holder	AK9606
	Head Phone Jack	AK7204
	AC Concent	AK8207
	Connector, 5P for Tape Rec/P.B	AK5803
	Terminal, Input 6P	AP2213
	Terminal, Antenna 3P	AP3111
	Terminal, Speaker Output 4P	AP3113
	Dress Nut, Head Phones	AM2605
	Screw, to Fix (Metal Cover)	AB1005
	Dial Spring	AE4102

SWITCHING UNIT AM0128

CAPACITORS

Symbol	Description			Part No.
C401	Electrolytic	1	6V	
C402	〃	10	〃	

POTENTIOMETER

Symbol	Description	Part No.
VR401	Trimmer 10K	AR0009

RESISTORS

Symbol	Description		Part No.
R 401	Composition	33K	
R 402	〃	680Ω	
R 403	〃	33K	
R 404	〃	2.2K	
R 405	〃	10K	
R 406	〃	1.5K	
R 407	〃	2.2K	
R 408	〃	220Ω	

TRANSISTORS

Symbol	Description	Part No.
Q 401	2SB54	
Q 402	〃	
Q 403	〃	

MPX UNIT AM0129

CAPACITORS

Symbol	Description				Part No.
C501	Mylar	0.05	20%	50V	
C502	Electrolytic	5		25V	
C503	Plastic Film	520P	5%	50V	
C504	〃	90P	〃	50V	
C505	Mylar	0.02	20%		
C506	〃	0.02	〃		
C507	Ceramic	500P			
C508	Mylar	0.05	20%	50V	
C509	Plastic Film	0.02		50V	
C510	Mylar	0.1	20%	50V	
C511	Plastic Film	0.02		50V	
C512	Oil paper	0.01			
C513	Mylar	0.05	20%	50V	
C514	Plastic Film	0.005		50V	
C515	Electrolytic	1		50V	
C516	〃	1		50V	
C517	〃	1		25V	
C518	〃	1		300V	
TC501	Trimmer	20P			AC3312
TC502	〃	50P			AC3311

RESISTORS

Symbol	Description				Part No.
R501	Composition	470K			
R502	〃	1K			
R503	〃	4.7K			
R504	Carbon	10K	5%		
R505	〃	1K	〃		
R506	〃	〃	〃		
R507	〃	〃	〃		
R508	〃	〃	〃		
R509	Composition	33K			
R510	〃	〃			
R511	〃	1K			
R512	〃	〃			
R513	〃	12K			
R514	〃	〃			
R515	〃	1M			
R516	〃	〃			
R517	〃	470K			
R518	〃	470Ω			
R519	〃	470K			
R520	Carbon	2.2K			
R521	Composition	100K			
R522	〃	1K			
R523	〃	2.2K			

PIONEER

Symbol					Part No.
R524	Composition	6.8K			
R525	"	10K			
R526	"	6.8K			
R527	Wire Wound	680Ω		2W	
R528	Composition	2.2K			
R529	"	"			
R530	"	68Ω			
R531	"	100K			

TUBES, DIODES AND TRANSISTORS

Symbol	Description	Part No.
V501	6AN8	
V502	6AQ8	
V503	"	
D501	0A79	
D502	"	
D503	"	
D504	"	
D505	"	
D506	"	
Q501	2SC372	
Q502	2SB55	

POTENTIOMETER

Symbol	Description		Part No.
VR501	Trimmer	5K	AR0016

PACKAGED COMPONENT

Symbol	Description	Part No.
P501	38KC Twin T type filter	AC9606
P502	"	"

TRANSFORMERS AND COILS

Symbol	Description	Part No.
T501	19KC	AT9817
T502	"	AT9824
T503	38KC	AT9813
L501	10mH	AL9815
L502	49mH	AL9814

FM FRONTEND AM0120
CAPACITORS

Symbol	Description			Part No.
C301	Ceramic	20P	400V	
C302	"	50P	"	
C303	"	1000P	"	
C304	"	15P	"	
C305	"	30P	"	
C306	"	3P	"	
C307	"	5P	50V	
C308	"	250P	400V	
C309	Feed-thru type Ceramic	1000P		
C310	"	"		
C311	"	2P		
C312	"	1000P		
C313	"	"		
C314	"	"		
C315	"	"		
C316	Ceramic	2000P	400V	
C317	"	"	"	
C318				
C319	Feed-thru type Ceramic	2P		
C320	"	"		
C321	Ceramic	5P	400V	
C322	"	12P	"	
C323	"	1P	"	
C324	"	1000P	400V	
C325	"	2000P	"	
C326	Feed-thru type Ceramic	2P		
CT301	Cylinder Trimmer			AC0302
VC301	Variable Capacitor			AC6429

RESISTORS

Symbol	Description			Part No.
R301	Composition	47K	1/4W	
R302	"	1K		
R303	"	47K	1/4W	
R304	"	1K		
R305	"	47K		
R306	"	1M		
R307	"	10K	1W	
R308	"	33K		
R309	"	100Ω		
R310	"	100K	1/4W	

TRANSFORMERS AND COILS

Symbol	Description	Part No
T301	Antenna Coil	AL0207
T302	RF Coil	AL0421
T303	OSC Coil	AL0318
T304	IFT	AT8115
L301	Heater Choke Coil 1μH	
L302	"	
L303	"	

TUBES AND DIODE

Symbol	Description		Part No.
V301	6CW4		
V302	6AQ8		
D301	Variable Capacitor Diode	1S85	

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